

New Research: The Impact of Legalizing Marijuana

Sgt. Bruce R. Talbot (ret)

This seminar was written by Sergeant Bruce R. Talbot (retired) based on the full-day training on responding to medical marijuana laws delivered in Illinois and on fitness for duty/drug free workplace training conducted around the country.

Sergeant Talbot retired in June of 2002 after 26 years of police service in the Chicago metropolitan area. He earned a bachelor of science degree from Southern Illinois University and a Master of Public Administration degree from Roosevelt University in Chicago.

Sergeant Talbot is recognized as an expert in the area of Gateway Drugs and teaches on the topic of drug abuse throughout the United States and Canada. He has been qualified as an expert witness in criminal court trials in Illinois and Texas, and has testified as an expert witness before two United States Senate committees. Sergeant Talbot is also an approved provider by the U.S. Center for Substance Abuse Prevention.

Sergeant Talbot has appeared on the NBC "Today Show," CNN "Talk Back Live," CBS "Eye On America," ABC "A Closer Look" and international programs including the BBC "Science Frontiers," and the CBC "Market Place." He has been featured in major newspapers such as The New York Times and Chicago Tribune. He also authored a feature story in the Saturday Evening Post and has co-authored scientific research on the effectiveness of police enforcement to control adolescent gateway drug use published in the Journal of Applied Behavior Analysis, November 1999.

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2016 Colorado ER Study



ER Visits Before/After Legalization:

- ✦ 109% increase among tourists
- ✦ 44% increase among residents

Reasons for Hospitalization:

1. Heart: palpitations, tachycardia, high blood pressure.
 2. Psyc: panic, agitation, psychotic.
 3. Gastro: vomiting, dry heaves.
- ✦ 44% admitted to hospital.
 - ✦ Cause: "overdose."

A February, 2016 study published in the New England Journal of Medicine by Northwestern University Feinberg School of Medicine and the University of Colorado School of Medicine researchers, analyzed Emergency Room visits at more than 100 hospitals in Colorado in which there was a diagnosis of patients having used marijuana. Researchers compared 2012, before Colorado legalized marijuana, to 2014 when marijuana was legally sold for recreational use. They found marijuana-related Emergency Room visits by out-of-state visitors increased by 109 percent while Emergency Room visits by Colorado residents increased 44 percent. Dr. Howard Kim, the lead investigator in the study, is quoted in a news article saying, "Our hypothesis is that out-of-state visitors weren't as aware of the potential side effects of marijuana use" (compared to local residents who were more tolerant of high potency cannabis). The most common complaints for marijuana using patients were: 1). Psychiatric: panic attacks, agitation, or psychotic experiences, 2). cardiopulmonary: racing heart rate or skipping beats/heart fluttering with high blood pressure, and 3). Gastro-intestinal: uncontrolled vomiting, dry heaves, accompanied by dehydration. About 57 percent of the out-of-state patients were discharged while the other 43 percent were admitted for further treatment. Dr. Kim believes the symptoms are the result of cannabis overdose. He treats with anti-anxiety medication (Xanax) and intravenous fluids to reduce heart palpitations, and with anti-nausea medication if they are vomiting.**

*<http://tinyurl.com/FullJournalReport>

**<http://tinyurl.com/ChiTribPotStudy>

Cannabinoid Hyperemesis Syndrome

- ✦ Cyclic vomiting, stomach pain and dehydration.
- ④ Suspected withdrawal symptom.
- ④ Denver hospitals seeing average of 2 patients a day.
- ④ Risperdal® or Abilify® antipsychotics used to treat.
- ✦ Most are heavy, daily users.

“ . . . it’s akin to a withdrawal phenomenon—like alcohol with fevers and shakes.”



Medical Doctor Frank Friedenber (pictured above) is the lead author of a scientific paper on the medical condition “Cannabinoid Hyperemesis Syndrome,” (CHS), seen in heavy marijuana users. CHS is typified by violent vomiting, dehydration, and abdominal pain lasting 48-hours or more.* The vomiting and pain comes in cycles that can be temporally relieved with hot baths. Victims report using marijuana 3 to 5 times a day when the condition first appears and report having used marijuana, on average, for 16 years. The concept that marijuana may alleviate nausea for some cancer patients, yet cause violent fits of vomiting for heavy users, is known as the “paradoxical effect,” which is common in medicine.

In a January 14, 2016 article, Dr. Jason Persoff of the University of Colorado Hospital relates that after Colorado legalized marijuana he now sees a patient with marijuana induced CHS symptoms every day or two. Dr. Persoff administers the antipsychotic drug Risperdal® or Abilify® along with supportive care and advises at least 30 days of marijuana abstinence. Dr. Persoff is quoted in the article saying, “That’s a long time. Most patients just don’t have the buy-in, due to conviction that marijuana is the cure and not the cause. While we don’t fully understand the mechanism behind (cannabinoid) hyperemesis syndrome, my feeling is that it’s akin to a withdrawal phenomenon—like alcohol with fevers and shakes. . . If it is a withdrawal phenomenon, then that would be a sign of physical addiction to marijuana.”**

*Abstract of the paper is available on line at: <http://tinyurl.com/Hyperemesis>

**<http://tinyurl.com/jtbgpo7>

Case Study: Maureen Dowd

- ✦ Ate marijuana infused candy bar legally purchased in Denver. No use/dose instructions on package.
- ✦ Suffered extreme paranoia lasting 8-hours, unable to move or call for help.
- ✦ Eating cannabis dramatically increases dose in the brain but delays onset over 1-hour.
- ✦ Amygdala “Fight or Flight” response.



Maureen Dowd

**The
New York
Times**

***“I became convinced that I had died
and no one was telling me.”***

Respected New York Times journalist Maureen Dowd wrote about her personal experience eating a marijuana-infused candy bar legally purchased at a Denver retail marijuana store. The cannabis candy bar had no warning label, no listing of the potency of the THC in the candy, and no dosing instructions. One complaint of the Colorado marijuana law is that cannabis is now less regulated than alcohol in the state. Dowd says she “nibbled off the end” of the pot candy bar and after one hour with no perceptible effect, then she “nibbled some more.” She describes what happened:

*“For an hour, I felt nothing. But then I felt a scary shudder go through my body and brain. I barely made it from the desk to the bed, where I lay curled up in a hallucinatory state for the next eight hours. I was thirsty but couldn’t move to get water. Or even turn off the lights. I was panting and paranoid. . . I strained to remember where I was or even what I was wearing, touching my green corduroy jeans and staring at the exposed-brick wall. As my paranoia deepened, I became convinced that I had died and no one was telling me. It took all night before it began to wear off, distressingly slowly.”**

In a 2011 study published in the Journal of Neuroscience, researchers discovered THC can stimulate fear formation within the amygdala–prefrontal cortical pathway. Inexperienced users or heavy doses of THC may produce this paranoia effect.**

**Full article is available on line at: <http://tinyurl.com/MaureenDowdPot>*

***Abstract of the study is available on line at: <http://tinyurl.com/PotParanoia>*

Legal Cannabis & Violence

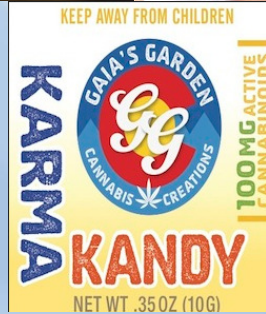


May, 2016 Law Suit:

- ✦ “Karma Kandy” 100mg THC
- ✦ Psychotic behavior, shots wife while she calls 911.
- ✦ 2.3ng THC in blood, no other drugs or alcohol.
- ✦ Label fails to warn, disclose harmful side effects.

2014 Denver Death:

- ✦ College student become psychotic and jumps to his death after eating cannabis cookie.

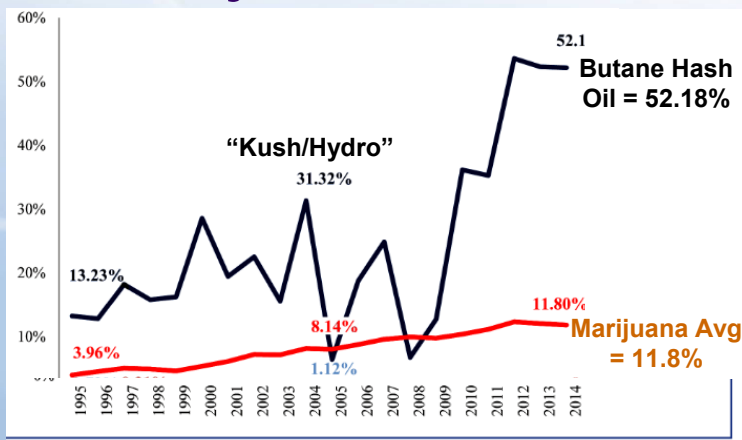


On May 10, 2016 the surviving three sons of murder victim Kristine Kirk filed a law suit against the manufacturer of “Karma Kandy” cannabis edibles. The suit alleges that the children's father, 44 year old Richard Kirk, purchased the Tootsie Roll type infused cannabis product manufactured by Gaia’s Garden LLC, and sold at retail by Nutritional Elements Inc. and became psychotic after eating part of the candy. Kirk began ranting about the end of the world and was actively hallucinating to such a degree that his wife Kristine called 911 asking for police intervention. However, Kirk took a gun and shot her to death as she was on the phone before police arrived. A toxicology report shows 2.3 nanograms of THC in Kirk’s blood with no evidence of any other drugs or alcohol in his system. This is the first law suit against the legal marijuana industry. The suit claims that the manufacturer *“negligently, recklessly, and purposefully failed to warn about the bite-sized candy’s potency and possible side effects—including hallucinations and other psychotic behaviors. The manufacturers of dog treats have shown more concern for the health and well-being of dogs that consume their product than the Edible Producers have shown for the people in our community that consume theirs,”* the lawsuit claims.*

This is not the first death involving legal marijuana. Right after legal recreational marijuana sales began, a Wyoming college student became agitated after eating a marijuana-infused cookie and leapt to his death from a Denver hotel balcony. Edibles make up 45 percent of the cannabis market, but produce the majority of adverse incidents.

*Denver Post article: <http://tinyurl.com/KarmaKandySuit>

2015 Univ. Mississippi Report: Marijuana & BHO Potency



Source: University of Mississippi, Potency Monitoring Program, Quarterly Report 127

THC Potency Increases From 3% Up To 52% Now!

The October 2015 National Drug Threat Assessment relates that standard street-grade marijuana potency sharply increased in strength from 2.8 percent in 1986 to 11.8 percent in 2014. This increase is the result of growers cultivating better strains of female cannabis with higher resin content. Resin has the highest concentration of THC intoxicant. The report also included high potency specialty THC extract known as butane extraction hashish. The average high potency hashish was 51.18 percent with some samples testing over 80 percent.

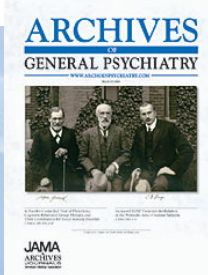
This high TCH content marijuana can cause panic attacks, heart palpitations, and paranoia which can result in hospitalizations.* "There's an increase in psych admissions," says Dr. Stuart Gitlow, a psychiatrist and president of the American Society for Addictive Medicine, who estimates that upwards of 1 in 100 people using high-THC marijuana experience psychotic symptoms.

Over 1 million Americans sought treatment services for marijuana addiction. More teens are in treatment for marijuana abuse use than any other drug including alcohol. Marijuana was the second most frequently mentioned illicit drug reported to the Drug Abuse Warning Network (cocaine was the first) by emergency departments nationwide.** DAWN also collects information on deaths involving drug abuse in 42 metropolitan areas across the United States. Cannabis ranked among the 10 most common drugs in 16 cities. Marijuana is very often reported in combination with other substances; in metropolitan areas that reported any marijuana in drug abuse deaths, an average of 79 percent of those deaths involved marijuana and at least one other substance.

*2015 Nation Drug Threat Assessment, U.S. DEA, October, 2015, Page 65.

**"National Estimates of Drug-Related Emergency Department Visits" Drug Abuse Warning Network (DAWN) Substance Abuse and Mental Health Services Administration, Pub. SMA 06-4143, Rockville, MD

Mental Illness Linked to Dosage



March 1, 2010 Study:

- ✦ Of 3,801 sibling pairs, 322 were chronic users
- ✦ 4 times higher incident of mental illness
- ✦ Twice as likely to develop schizophrenia or to have delusional disorders
- ✦ Increased risk after 3-years

"Marijuana use isn't as harmless as some people think." Dr. John McGrath

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A peer reviewed scientific research study conducted by Dr. John McGrath and published in the prestigious "Archives of General Psychiatry" found that adolescent use of marijuana correlated to an increased occurrence of psychotic symptoms including schizophrenia and delusional disorders including hallucinations. The researchers studied 3,801 adolescent sibling pairs to reduce the chance of environmental or hereditary causes. After a 21-year follow-up it was found that adolescents who smoked marijuana for six years or more were found to develop psychosis's such as schizophrenia and other delusional disorders at twice the rate compared to a brother or sister who never smoked marijuana. They also were four times more likely than non-users to have experienced psychotic-like experiences such as flash-backs and hallucinations. Even those who smoked marijuana for less than three years still had an increased risk of scoring higher on the Peters et al Delusions Inventory test.*

Unlike some drugs of abuse, like narcotics or cocaine, where negative life impacters are experienced shortly after drug abuse begins, dangerous mental health effects from repeated exposure to smoked marijuana can take several years to manifest. As the THC dose loading in the blood stream builds the mental impairment becomes greater. Repeated use at high dose levels appears to have a cumulative effect that increases the risk of later mental illness. This effect maybe the result of stored THC in the fat cells of the user's body. As the body calls up stored fat reserves to be converted to sugar for energy, the associated stored THC is re-released into the body.

**"Association Between Cannabis Use and Psychosis-Related Outcomes Using Sibling Pair Analysis in a Cohort of Young Adults" John McGrath et al, Archives of General Psychiatry, March 1, 2010*

Jared Loughner & Cannabinoids



- ✦ Drug use began before mental illness symptoms.
- ✦ Admitted to “excessive” marijuana and Salvia use.
- ✦ Prior drug arrests. Teacher relates “on drugs” in-class.
- ✦ Numerous research studies connect chronic cannabis use to mental illness.

“75% of schizophrenia patients used cannabis before the first signs of mental illness appeared” Einstein College of Medicine

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The most overlooked factor in the mass killings committed by Jared Loughner was his heavy abuse of cannabinoid activating drugs. Loughner was clearly insane at the time of the shootings, most likely suffering from paranoid schizophrenia, however, most schizophrenia suffers do not commit violent acts. An important scientific research study found that the relationship between violence and schizophrenia is “almost completely determined by drug and alcohol use”^{*} According to peers who knew Loughner, he began using marijuana in his second year of high school and was known to be a heavy user of the drug when he dropped out of school in his junior year. In addition to marijuana, Loughner also began to routinely use the much more potent cannabinoid activator, Salvia Divinorum. Loughner eventually was arrested for his drug use and the court ordered him into a drug diversion program. Later, when he attempted to join the Army but failed his drug test, Loughner admitted to “excessive drug use”, primarily marijuana.^{**} The scientific connection between marijuana use and mental illness has been well established. Researchers from the Einstein College for Medicine found that 75 percent of schizophrenia patients had begun smoking marijuana before the first signs of mental illness appeared.^{***} French researchers found that marijuana use significantly intensified the degree of mental illness among schizophrenia suffers each time they used the drug. A 2007 comprehensive review of marijuana use and mental illness reported in the British Medical Journal The Lancet concluded, “cannabis use could increase the risk of psychotic illness” among users of the drug.

^{*}“Schizophrenia, substance abuse, and violent crime” JAMA 2009 (vol 301 p2016)

^{**}“Marijuana, schizophrenia, and Jared Loughner” Jan. 20, 2011, Dr. Robert DuPont, Institute for Behavior & Health

^{***}“Tragedy in Tucson: Did marijuana play a part?” Jan. 2011, Dr. Joseph Califano Columbia University, National Center on Addiction and Substance Abuse

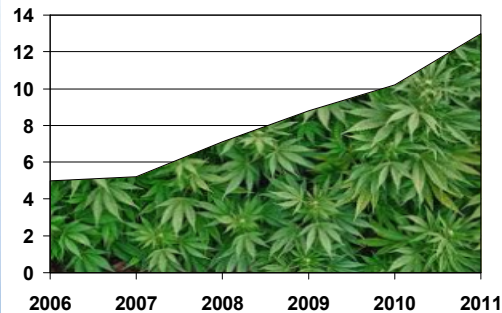
Colorado Fatal Marijuana DUI

Total fatalities dropped following national trend, however, pot fatalities increased 114%.

✚ **2006 = 5% of fatalities**

✚ **2011 = 11% of fatalities.**

“Drivers who tested positive for marijuana are more than twice as likely to be involved in motor vehicle crashes.”



Colorado Medical Marijuana

2008: 4,800 cardholders

2011: 108,000 cardholders

An August 2013 report by the D.E.A.'s Rocky Mountain High Intensity Drug Trafficking Area titled "The Legalization of Marijuana in Colorado: The Impact" found the number of drivers involved in a fatal car crash increased 114 percent from 2006, when Colorado began its medical marijuana program, to 2011 the date for the most recent state car crash data. In 2006, it was estimated that about 1,000 Colorado residents obtained state medical marijuana identification cards. That number increased to 4,800 cardholders in 2008 when a judge lifted restrictions on the number of dispensaries allowed to distribute marijuana. As of 2011, the state has 108,000 cardholders (94 percent of whom claim to need the drug for severe pain) and 532 licensed dispensaries.

The report found overall traffic fatalities in Colorado decreased 16 percent, from 2006 to 2011, which is consistent with national trends. During the same six years in Colorado, traffic fatalities involving drivers testing positive for just marijuana increased **114 percent**. In 2006 in Colorado, traffic fatalities involving drivers testing positive for marijuana represented 5 percent of the total traffic fatalities. By 2011, that percent more than doubled to 13 percent. In 2006, drivers testing positive for marijuana were involved in 28 percent of fatal vehicle crashes involving drugs. By 2011 that number had increased to 56 percent.*

*Colorado Dept. of Transportation Drugged Driving Statistics 2006 - 2011,
<http://www.coloradodot.info/programs/alcohol-and-impaired-driving/druggeddriving/drugged-driving-statistics.html>

2015 Medical Cannabis DUI Trends

NHTSA FARS Study:

- ✦ 12.8% fatalities THC-positive.
- ✦ Younger than alcohol DUI (28 vs 33 yoa).
- ✦ 56% were speeding at time of the crash.
- ✦ Med. Pot states are 24% higher fatal DUI rate.
- ✦ Loosening regulations increases use and consequences.



Note the pupils!

From "Girls Gone Weed" web site

According to the 2015 NHTSA Fatal Accident Reporting System, 12.6 percent of drivers involved in fatal car crashes tested positive for marijuana before the first medical marijuana identification cards were issued.* The study found that marijuana positive drivers were, on average, younger than alcohol involved drivers, (28 years of age vs 33 years of age). Also, 40 percent of the marijuana positive drivers were poly-drug abusing with alcohol. Although many marijuana users feel the drug claims them down and makes them a safer, less aggressive, driver, the study found 56 percent of the marijuana positive drivers were speeding at the time of their fatal car crash. The study also sends a warning to other states: marijuana DUI rates will increase with implementation of medical marijuana. States with medical marijuana laws have a 24 percent higher fatal car crash rate involving marijuana.

Marijuana continues to be the most widely abused and readily available illicit drugs. Because of its low cost and perceived safety (driven by the medical marijuana movement) marijuana attracts many new users every year.

**<http://www.fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx>*

Liberty Mutual Insurance Study

April, 2013

- ⊕ **41% said driving while using pot had no effect on driving safety!**
- ⊕ **34% of users said driving high makes them a *better* driver!**
- ⊕ ***"Slightly distracting"***



A study by Liberty Mutual Insurance company of 1,708 admitted marijuana users found that three quarters of the users said driving while high on marijuana is at only "slightly distracting". The study states that 41-percent of users felt smoking marijuana while driving had no effect on the safe driving and was less impairing than alcohol or texting on a cell phone. A full 34-percent of marijuana smokers felt the intoxication from marijuana made them safer drivers because they felt they drove slower and concentrated more on the driving task.* The study author was quoted as being "shocked" by the beliefs.

"I don't understand how they think it improves their driving. Maybe they think that their senses are enhanced as a result of using a mind-altering drug. I just can't say, I have no idea."

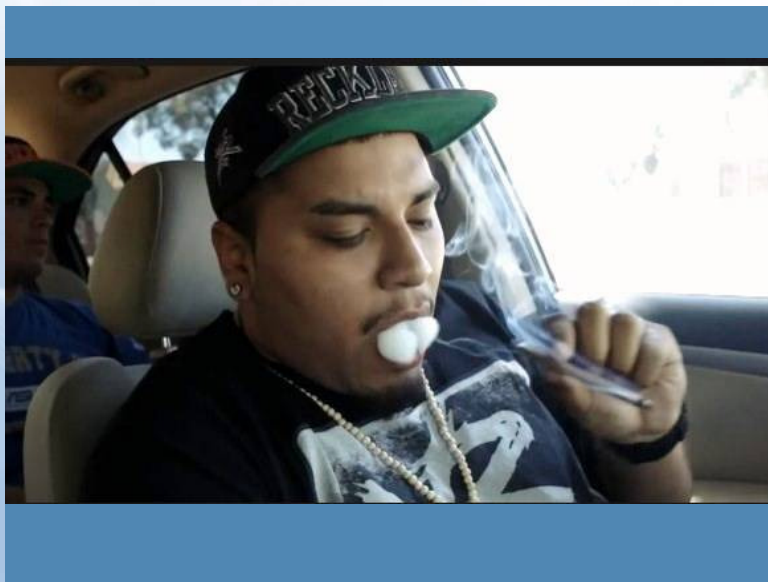
The National Institute on Drug Abuse, in a 2011 publication states research that found "Marijuana affects a number of skills required for safe driving—alertness, concentration, coordination, and reaction time."

Even the National Organization for the Reform of Marijuana Laws official policy stated on their web sight admits that marijuana intoxication delays reaction time. Their official policy states that marijuana dose not make a person a better driver and they admonish against using the drug while driving:

"...responsible cannabis consumers never operate motor vehicles in an impaired condition."

*<http://LibertyMutual.com/studies>

“Hot-boxing” Video Clip



In this video clip posted on You Tube by “E-Zone (Da Firm)” from California, a medical marijuana user gives a step-by-step instruction on how to “hot-box” and the best places to “post-up”. Hot-boxing is a street slang term for smoking marijuana in a car with the windows rolled-up so none of the exhaled smoke leaves the car. It usually implies that several people will all be smoking marijuana in the car and all will share the residual leftover (exhaled) marijuana smoke. Hot-boxing usually employs a larger amount of marijuana in the form of a “blunt” (hollowed-out Philly Blunt cigar filled with marijuana) or several bowls of marijuana from a pipe. To “post-up” means to claim a spot. The term came from drug dealers on street corners who would lean against a street lamp pole and claim that corner as their exclusive area.

E-Zone proudly shows the video camera two bottles of medical marijuana with the dispensing labels and also shows off his California medical marijuana certificate explaining if he is ever stopped by the police for marijuana use his certificate will get him out of any legal trouble. E-Zone drives around the neighborhood pointing out that hot-boxing should never be done in a city park, playground parking lot, or any government property because cops check those locations. E-Zone also advises against posting-up anywhere where government vehicles are parked nearby or where the vehicle may be the only car on the block, or on a busy main street. The preferred location is on a quiet residential block under the shade tree where few police drive-by.

Duration of Impairment

FAA study of 2 pilots showed cannabis caused simulator “crashes” and impairment was measured for 3 days after pilots said they felt normal. Subtle mental impairment lasts long after the “high” wears off.



Delta 9 THC, the substance that produces the intoxicating effect from smoking marijuana, is a fat soluble substance. This means the human body cannot flush the drug out of the system, but rather stores the drug in the billions of fat cells throughout the body. Long-term users of this drug will have their entire body fat saturated with THC. As the body calls up fat to be burned for energy, small amounts of THC are released back into the blood stream. This effect produces the classic “burn-out” drug user appearance.

Long after the intoxicating high obtained from smoking marijuana wears off, mental impairment can be measured. A breakthrough research study by the Federal Aviation Administration proved this fact. Two Learjet pilots were caught smoking marijuana and, as part of their drug rehabilitation, agreed to submit to testing the effects of marijuana on pilot skills. As would be expected, when the pilots were intoxicated on marijuana, they “crashed” an FAA full-motion flight simulator. Surprisingly, when the pilots were brought back to the simulator the next day (after the intoxicating effects of marijuana were long past) they continued to show “significant operational impairment.” In fact, after three days from last use of marijuana, both pilots showed continued impairment. This same effect would be present in drivers long after the “high” wears off, showing the value of zero tolerance DUI-drug laws. NHTSA reports peak impairment appears after 3-hours of use with some residual effects lasting up to 24-hours.

**Marijuana Carry-over Effects on Aircraft Pilot Performance” 1991,
Aviation Space Environment 62(3) 221-7*

Drug Breath Test

- ✦ Roadside drug breath test developed in Sweden by SensAbues.
- ✦ Captures “bio-aerosol micro-particles” from blood/gas transfer in lungs.
- ✦ Pending FDA approval in US.
- ✦ Goal is to replace urine drug tests.



**2-Hours after
smoking cannabis
not 2-weeks!**

Amazing research has found that specially trained dogs can smell the unique chemicals present in expired breath of human lung cancer patients. This is because chemicals in the blood system are off-gassed during the air/carbon dioxide exchange in the lungs. This is the same basic principal that is used to detect raw alcohol in a police breathalyzer.

Research at Karolinska University Hospital in Sweden of a hand-held device named the Drug-Trap produced by SensAbues promises to make roadside drug breath testing possible. The Drug-Trap uses a special filter material the captures “bio-aerosol micro-particles” from drugs of abuse in the blood stream of illicit drug abusers. Testing of the new device shows it was able to detect approximately 20 drugs including designer drugs like “bath salts.” The breath collection testing takes approximately two minutes with the driver blowing into a mouthpiece so no saliva can get to the filter, only the aerosols. A small plastic bag indicates when enough breath has been supplied by the driver. The filter disk is then removed from the hand held device and is tested in a lap-top sized electronic drug analyzer. The technology has been successfully tested in Swedish prisons and rehabilitation clinics, and in spring 2013 commercial workplace drug testing started.

The advantages compared to current police urine drug testing is that the testing can potentially be done at roadside within two minutes rather than waiting weeks or months as is the case with urine testing. Also, breath testing is more time-specific in that the drug micro-particles are raw and in the driver's blood stream, meaning, the drug is in the driver's brain. Urine drug tests only detect the drug breakdown components and can be detected days or weeks after the drug has been used making driving impairment impossible to prove.

Field Sobriety Testing Research

Australian Study:

- ✦ OLS is most accurate test (76.3%).
- ✦ Head Movement/Jerk during HGN test increases accuracy.
- ✦ 16% impaired missed.
- ✦ 38.5% sober drivers misclassified as impaired.

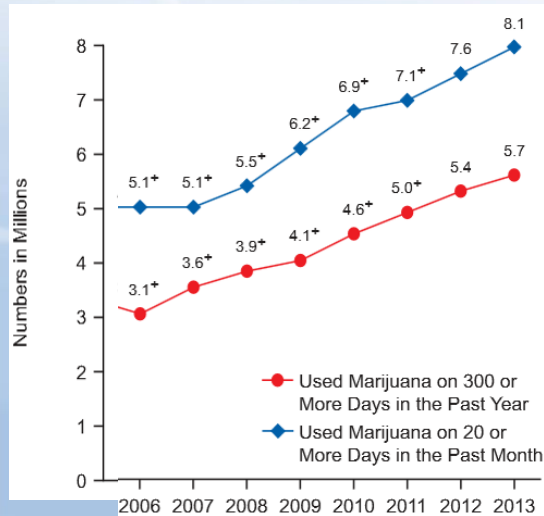


*Muscle twitch
most common at
high doses.*

A study by Dr. Katherine Papafotiou of Australia's Swinburne University of Technology published in 2001 looked at the performance of drivers during the Standardized Field Sobriety Tests (SFST) while intoxicated on marijuana. The SFST (same as used in America) has been proven valid as an indicator of alcohol impairment by the National Highway Traffic Safety Administration, but the same research has not been conducted by NHTSA on marijuana. The Australian study added the Finger-To-Nose and Romberg Balance tests to the SFST. Real marijuana cigarettes, provided by the U.S. government, were used in the study. The relation-ship between driving performance on a simulator and performance on the SFST were compared using 40 test subjects in a double-blind study. Blood tests show THC levels of just 2 ng/ml among inexperienced users and 3 ng/ml among experienced users cause driving impairment (top-end levels were 12 ng/ml). Most common driving impairment noted was lane violation of the center line and skip-dash line, as well as slow reaction time and following too closely.

The research found marijuana intoxication does impair performance on SFST and the most accurate test is the One Leg Stand test. The study also found that looking for head movements and head jerks during the HGN test “significantly improved the accuracy of the SFST.” The study found “SFST battery are **moderate** predictors of driving impairment but do misclassify 16-percent of impaired drivers as sober and 38.5-percent of sober drivers as impaired.” The study also notes that the SFST were more sensitive to the presence of THC than actual driving performance.

Adolescent Cannabis Addiction



Age 12 or older:

✦ **Daily marijuana use continues to climb.**

✦ **Smoked 20 out of 30 days: 8.1 million.**

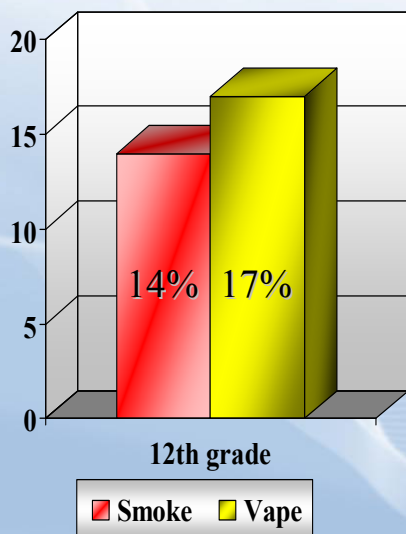
✦ **Black: 10.5
White: 9.5
Hispanic: 8.8
Asian: 3.1**

The September, 2014 “National Survey on Drug Use and Health” published by the U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration’s Center for Behavioral Health Statistics and Quality, found that national marijuana use rates continue to climb. In the most dangerous category, known as “daily or nearly daily marijuana smoking,” the number of persons age 12 or older who smoked marijuana 20 days out of the past month increased from 5.1 million in 2006 to over 8 million in 2013. The number who said they had smoked 300 days in the past year increased from 3.1 million users to nearly six million users in 2013. Marijuana was the most commonly used illicit drug in 2013. There were 19.8 million past month users in 2013 (7.5 percent of those aged 12 or older), which was similar to the number and rate in 2012 (18.9 million or 7.3 percent). The 2013 rate was higher than the rates in 2002 to 2011 (ranging from 5.8 to 7.0 percent). Marijuana was used by 80.6 percent of current illicit drug users in 2013. About half (48.6 percent) of youths aged 12 to 17 reported in 2013 that it would be “fairly easy” or “very easy” for them to obtain marijuana if they wanted some.

Demographically, whites, blacks, and Hispanics used at similar rates. Only Asians had a significantly lower marijuana use rate. Geographically, the rate of current illicit drug use among persons aged 12 or older was 9.6 percent in large metropolitan areas, 9.8 percent in small metropolitan areas, and 7.8 percent in rural areas.*

*<http://www.samhsa.gov/data/NSDUH/2013SummNatFindDetTables/NationalFindings/NSDUHresults2013.pdf>

2015 Study: Vape vs. Cigarettes



- ✦ More kids Vaping than smoking today.
- ✦ Smoking declined to 1977 levels but. . .
- ✦ Vaping nearly tripled.
- ✦ Half of Vape-kids say they plan to smoke cigarettes.
- ✦ 62% of teens say safer.

For the first time, more teenagers are using electronic-cigarettes than smoking tobacco cigarettes. The 2015 University of Michigan "Monitoring the Future" report found that teenage cigarette smoking in 2014 was at its lowest level since 1975. Among 12th-graders, 17 percent reported e-cigarette use and 14 percent reported use of a tobacco cigarette. Over 62 percent said there is a great risk from tobacco cigarettes but only 15 percent of 8th-graders said there is a great risk of harm with use of e-cigarettes. Also, 16 percent of 10th graders surveyed reported using an e-cigarette, while 7 percent reported using a tobacco cigarette.*

"As one of the newest smoking-type products in recent years, e-cigarettes have made rapid inroads into the lives of American adolescents," Richard Miech, a senior investigator of the study, said in a statement. "Part of the reason for the popularity of e-cigarettes is the perception among teens that they do not harm health."

A recent study from the Center for Disease Control found e-cigarette use among school-age children has more than doubled recently, with half of children who report using e-cigarettes saying they intended to smoke conventional cigarettes within the next year.**

*<http://tinyurl.com/nrfjduz>

**<http://tinyurl.com/luxxxen>

“Shatter” Alcohol/Butane Hash



Shatter kitchen conversion:

- ✦ Nipple-top, thick-wall, glass tube with open bottom.
- ✦ Canned butane gas.
- ✦ 200 proof grain alcohol.
- ✦ Candy thermometer, coffee filters, glass baking dish, razor blades.
- ✦ 70%-80% pure hashish, \$1,800 per oz.

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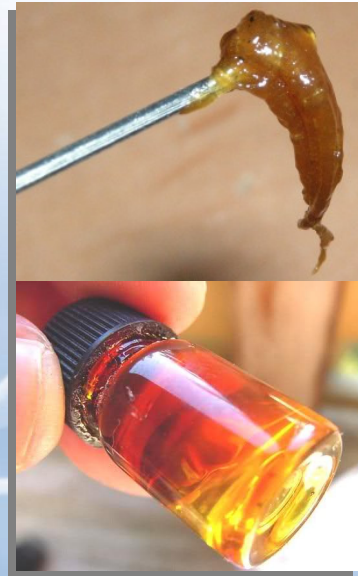
“Shatter” is the street name for a rock-hard form of hashish which can be produced in any kitchen using canned butane gas, 200-proof pure-grain alcohol, and coffee filters. Shatter is the preferred form of chemical hashish because it produces the highest potency of THC compared to Ear Wax, or Honey Oil hashish. It takes a pound of cannabis to produce just one ounce of shatter valued at \$1,800 per ounce.

The most obvious item in a kitchen shatter lab is the large, thick-walled glass tube that will have one end open and the other end forming a small nipple-like opening. The specialty glass tube can be ordered over the internet for about \$40 or purchased from marijuana home-grower suppliers in states where home-produced medical marijuana has been legalized. The butane gas often is purchased in case lot quantities as it takes several cans of butane to produce shatter from one gallon-size zip lock plastic bag of marijuana. The procedure is to pack the specialty glass tube with the flower-tops of cannabis and then empty several cans of butane gas from the nipple end forcing the gas through the column of compressed cannabis. A common coffee filter is placed on the large open end and the extracted liquid created from the butane gas extraction of the cannabis oils is collected in a glass container. The residual butane is removed from the extracted liquid oils by adding 200-proof alcohol and then boiling-off the alcohol by heating on the stove. Once the alcohol vaporizes the remaining material is cut into retail sale units that can appear as colored shards of glass. This process is extremely dangerous with dozens of fatalities from explosions and fires when the butane gas and alcohol vapors are ignited in an air-fuel bomb.*

*<http://www.dea.gov/divisions/sd/2014/sd091714.shtml>

Ear Wax/Honey Oil Resin “Dabs”

- ✦ THC extracted using butane or other solvents.
- ✦ Appears: hard & bubbles, gooey wax, thick liquid.
- ✦ 80% + pure THC, \$50/gram.
- ✦ O.D.= panic attacks, psychotic behavior, heart arithium.
- ✦ Diverted from clinics, dangerous to make at home.



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More police are being confronted with unusual forms of cannabis, including “ear wax hashish,” “bubble hashish,” “honey oil,” or “butter.” These concentrated extracted resin products can be over 80-percent pure THC and, if used incorrectly by an inexperienced drug abuser, can result in severe panic attacks, psychotic behavior and death. Illinois is considering adding these resins to the medical marijuana law.

Manufacturers can use solvents such as hexane, CO2 in addition to butane to extract TCH from the sap of the cannabis plant to produce a high intensity hashish-type product. Butane gas pumped under pressure in a tube containing cannabis resin acts as a non-polar solvent. Butane is a favored solvent because it boils at only 31°F so it is easy to heat to remove the excess butane after the extraction process. Nitrogen gas and industrial alcohol can also be used but can be more difficult to work with safely. If produced incorrectly there is a strong risk the inhalation of vapors by cooks performing the extraction process can suffer cardiac arrest. Drug abusers who smoke or vaporize these extractions that were produced incorrectly can introduce raw butane or nitrogen or other chemical impurities into the blood stream causing severe medical problems. Honey oil is made by using isopropyl alcohol to extract the THC from the plant which produces a vivid green-color alcohol. The green alcohol is carefully cooked off until only cannabis oil remains. Explosive fires can result in this process.*

*<http://www.myfoxla.com/story/22305076/its-the-latest-cannabis-craze-a-concerntrated-marijuana-known-as-wax>

Vaporizer “USB” Pens:

- Looks like a USB drive.
- Oven heats cannabis to 385° without burning.
- THC vapor nearly invisible.
- Little odor – no smoke.
- Leftover black “ash” can be saved and smoked.
- Cost: \$50-\$700.
- 2016: IL HB-2404 would ban indoor use.



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Not to be confused with an electronic cigarette with a THC tincture cartridge, a cannabis vaporizer is a completely different technique for introducing THC into the lungs without burning. The battery operated device looks more like a large USB computer-drive than a round e-cigarette. The user places a pinch of marijuana inside the device's small oven which heats the plant material to a temperature between 355°-385°F. At that temperature, the THC is released from the plant's cellulose in a nearly invisible vapor that does have a slight marijuana odor—but no smoke. The heated marijuana in the device's oven looks black after it is heated and is usually saved and burned later, mixed with unburned cannabis, in a conventional pot-pipe. The advantages of a vaporizer over an e-cigarette device is that the vaporizer is loaded with conventional marijuana (although it needs to be finely ground-up first) as opposed to a special liquid cartridge used by the e-cigarettes. Also, because of its USB-like shape, it is easier to conceal than an e-cigarette. The devices are much more expensive than e-cigarettes costing between \$50-\$700 each.* The devices have become more popular than e-cigarettes as documented by recent reports in the popular press.** There are dozens of U-Tube videos on Vaping and marijuana use, claiming Vaping is safer than smoking marijuana. None of these claims have been confirmed by the FDA. These devices are banned for sale to youth under 18 and a new bill, HB-2404 would treat Vaping exactly like smoking.**

*<http://nypost.com/2013/11/14/pot-vaporizers-let-professionals-get-stoned/>

**<http://tinyurl.com/j7k9fx7>

"Am I driving OK?"



This video clip is from the movie "Up In Smoke" starring Cheech & Chong released by Paramount Pictures in 1978 it was the first of seven Cheech & Chong marijuana themed movies. It makes fun of the fact that marijuana intoxication can alter perceptions and is included as a light hearted ending to a serious subject.

In February of 2003, Tommy Chong's California-based company, "Chong's Glass," was raided by federal law enforcement agents as part of a federal crackdown on "drug-related paraphernalia". In a plea bargain which allowed his son and wife to remain out of jail, Chong pleaded guilty to charges of conspiring to distribute drug paraphernalia in September 2003 was sentenced to nine months in federal prison, fined \$20,000, and forced to forfeit \$120,000 in assets. He was released in July 2004. His cellmate in prison was the notorious Jordan Belfort, made famous by the hit movie "The Wolf of Wall Street".

In June of 2012, Tommy Chong revealed he was suffering from prostate cancer and embarked on an "alternative healing" therapy including cannabis oil. Chong later wrote: *"With the diet, the supplements and the hash oil, plus a session with a world-renowned healer, Adam Dreamhealer, I'm cancer-free. That's right, I kicked cancer's ass! So the magic plant does cure cancer with the right diet and supplements."* On June 17, 2015, Tommy Chong Tweeted: *"The cancer came back. I got diagnosed with rectal cancer. I'm in treatment now. I'm using cannabis like crazy now, more so than ever before. I'm going to make sure I get a little edge off."* In October, 2015 he had conventional surgery to remove the tumor. It was revealed he had been using cannabis oil suppositories prior to the tumor discovery.

Discussion . . .



Scan the QRC to keep up-dated on this and other drug issues.

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